

REMARKS

Specification and Drawings

The specification and drawings are amended in response to the various objections raised in paragraphs 1 and 2 of the Office Action. Revised drawings sheets and annotated marked-up drawing sheets are submitted under an appended paper.

In response to paragraph 1 of the Office Action, Fig. 5 and paragraph 0042 are amended to change D1 to D400, and Fig. 8 and paragraph 0046 are amended to change D1 to D3, and D3 to D4 (D2 is deleted).

In response to paragraph 1a of the Office Action, Fig. 4(B) is amended to change "55" and "59" to "55'" and "59'".

In response to paragraph 1a of the Office Action, Fig. 5 is amended to change "158'" and "159'" to "158" and "159", and Figs. 14 and 15 are amended to omit "356", "445", and "446".

In response to the objections raised in paragraph 2, see the amendments mentioned above regarding D1 and D2. In addition, regarding T1, Fig. 8 and paragraph 0046 are amended to change T1 to T3, and T2 to T4 (T3 is deleted).

No new matter is added by any of the above-mentioned amendments. Reconsideration is respectfully requested.

Claims

Claims 1-20 are pending in the above-identified application. Claims 18-20 stand rejected under 35 USC 112, and Claims 1-20 are rejected under 35 USC 103 as being unpatentable over cited references that are identified below.

In the current paper, Claims 1, 4, 7, 10, 13 and 18 are amended, and Claims 2-3, 5-6, 8-9, 11-12, 14-15, and 19-20 remain as filed. Reconsideration and withdrawal of the pending rejection is respectfully requested.

Rejections Under 35 USC 112

Claim 18 is rejected under 35 USC 112, second paragraph, for reciting "the first and second pins". Claim 18 is amended herein to change "first and second" to "the plurality of", thereby overcoming this rejection. No new matter is entered.

The objection raised with respect to Claim 20 is believed to be addressed by the amendment to Claim 18.

For at least the above reasons, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 USC 112.

Rejections Under 35 USC 103

Rejection of Claims 1-5 and 8

Claims 1-5 and 8 are rejected under 35 U.S.C. 103 as being unpatentable over Bouveau and either Sassin or Ida. This rejection is traversed for the following reasons.

Claim 1 recites (in pertinent part):

...a tube-like wall section having a first end and a second end, the wall section defining a liquid flow channel extending from the first end to the second end of the wall section; and

a substantially flat membrane connected to the wall section such that the membrane is disposed between the liquid flow channel and an external region located outside of the flow control element,

wherein the membrane defines a plurality of pinholes that are formed such that when the membrane is subjected to normal atmospheric conditions and the membrane remains undeformed, the plurality of pinholes remain closed to prevent liquid flow between the liquid flow channel and the external region through the membrane, and when the membrane is deformed in response to an applied pressure differential between the liquid flow channel and the external region, the plurality of pinholes open to facilitate fluid liquid flow through the membrane.

As set forth in Applicant's specification, the term "pinhole" has

a specific meaning that, in combination with the "substantially flat membrane" in which the pinholes are formed, provides a structure that is distinguished over the cited prior art. In particular, the term "pinhole" refers to an opening that is formed by piercing the membrane using a pin or other sharp pointed object (see, for example, paragraph 0012):

According to another embodiment of the present invention, a flow control element including the wall section and elastic membrane described above is produced by stretching the elastic membrane in a radial direction, piercing the membrane using a pin, and then releasing the membrane such that the thus-produced pinhole closes. In one embodiment, stretching is performed inserting a base structure or other fixture into the wall section such that the wall section is pushed radially outward, thereby stretching the membrane. In another embodiment, two pins having different diameters are used to form the pinholes.

By forming a pattern of such "pinholes" in a "substantially flat membrane", the present inventor has created a novel nipple that is truly leak-proof, and in addition produces a flow rate that varies in response to the suckling strength of a child. That is, the membrane and pinholes combine to emulate a natural breast-feeding process in which the pinholes remain closed (i.e., do not spill or seep) until a child begins to suckle. As the child suckles, the membrane stretches and the pinholes open to facilitate the flow of liquid at a rate controlled by the applied suction. Specifically, small infants applying relatively weak suction produce a relatively small amount of stretching/opening, thus producing a relatively small flow, thus reducing the chance of choking. Larger children apply a relatively strong suction, thus producing greater stretching/opening and greater fluid flow. The nipple is therefore suited for children of any age, and

permit a single, leak-proof nipple to be used throughout a child's development.

Claim 1 is distinguished over the cited prior art references in that none of these cited references, either alone or in combination, teach or suggest the recited structure. Bouveau teaches a teat having a membrane and apparent perforations, but fails to teach or suggest how the perforations are formed (i.e., Bouveau fails to teach or suggest the formation of "pinholes", as defined in Applicant's specification). Ida teaches a nursing bottle including a nipple 12 having an orifice 18 that is "Preferably...self-sealing" (Col. 4, lines 30-32). Again, however, Ida fails to teach or suggest how orifice 18 is produced such that it is "self-sealing", and specifically fails to teach or suggest that orifice 18 includes the "pinholes" defined in Applicant's specification and recited in Claim 1. Finally, Sassin teaches a pacifier having an annular array of suction conduits 25 (Col. 4, lines 8-10). Sassin fails to teach the formation of these suction conduits in a "substantially flat membrane", and further fails to teach or suggest that these suction conduits are "pinholes", as defined in Applicant's specification and recited in Claim 1. Accordingly, it would not have been possible to combine the references described above to produce the structure recited in Claim 1 because none of these references teach or suggest a "a substantially flat membrane...defines a plurality of pinholes", as recited in Claim 1.

Claims 2-5 and 8 are dependent from Claim 1, and are distinguished over the cited prior art for at least the reasons provided above with respect to Claim 1.

Rejection of Claims 1, 2, 4, 5 and 9

Claims 1, 2, 4, 5 and 9 are rejected under 35 U.S.C. 103 as being unpatentable over Freeman et al in view of Sassin and Ida.

Sassin and Ida are discussed above.

Freeman teaches a beverage container 11 having a cap (closure) 10 including a spout 12, and a thin membrane 13 mounted attached to spout 12. The membrane 13 includes a slit 14 to that opens during use to facilitate fluid flow:

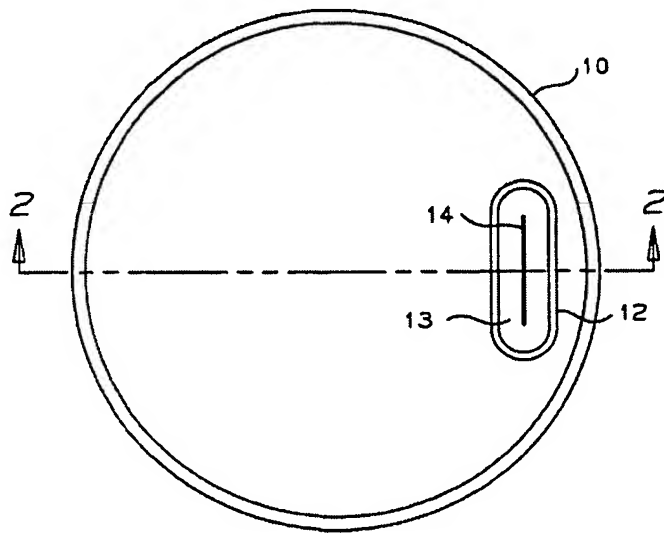


Figure 1

Freeman clearly teaches (see Col. 2, lines 48-52, reproduced below for reference) that the slit 14 is formed either by molding the slit into the membrane, or cutting the membrane using a sharp edged object:

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After the closure 10 is manufactured to the form shown in FIG. 4, the thin membrane 13 is assembled or
50 insert molded into the spout 12. The slit 14 is either molded into the thin membrane 13 or is formed with a sharp edge after the thin membrane 13 is produced.

Freeman also teaches an alternative embodiment (see Freeman's Fig. 6 and associated text from Freeman's Col. 2, which are reproduced below for reference) that utilizes a line of puncture

holes 16 to form an elongated slit-like opening in the membrane 13 that operates in a manner similar to the slit 14 used in the other embodiments disclosed by Freeman:

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40 Another alternative for similar purposes is specifically shown in FIG. 6 wherein the thin membrane 13 does not contain slit 14, but rather a plurality of punctured holes 16. In all other respects the closure 10 functions as disclosed in FIGS. 1 through 5 and in the written description pertaining thereto.
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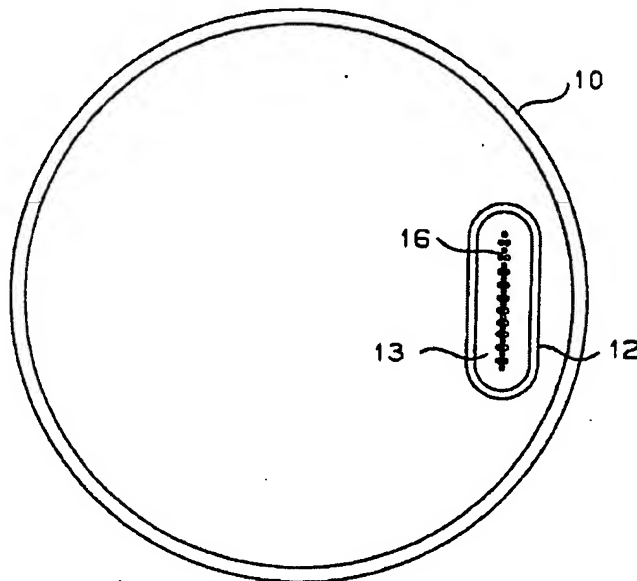


Figure 6

Those skilled in the art will recognize from the above disclosure that Fig. 6 shows a membrane having a slit-like opening formed by an alternative production method (i.e., different from the molding or cutting method used to form slit 14). That is, by forming a line of closely-spaced puncture holes 16 in the thin membrane 13, the material located between the adjacent puncture holes 16 tears or splits, thereby forming a fissure that extends along the entire line of holes 16. Alternatively, even if this fissure is not immediately created during the puncturing process, the fissure would be created the first time the cup was used (i.e., the applied pressure would cause the relatively weak sections between the puncture holes to fail). In either case, the purpose of the Freeman's puncture holes 16 is not to pass fluid, but to form the elongated opening (fissure) that is clearly shown in Freeman's Fig. 6. Those skilled in the art will recognize that the purpose for forming the fissure using Freeman's puncture holes 16 (as opposed to forming a slit by molding/cutting the membrane) is that the two sides of the

split/torn portion of membrane material forms a tighter, more reliable seal than molded/cut slits.

Accordingly, it would not have been obvious to combine the teachings of Freeman with the teachings of Ida and/or Sassin to produce the structure recited in Claim 1 because none of these references teach or suggest "a substantially flat membrane...defines a plurality of pinholes", as recited in Claim 1.

Claims 2, 4, 5 and 9 are dependent from Claim 1, and are distinguished over the cited prior art for at least the reasons provided above with respect to Claim 1.

Rejection of Claims 9 and 17

Claims 1-7 and 10-15 are rejected under 35 U.S.C. 103 as being unpatentable over Wu in view of Chomik et al.

Claims 1 and 10 are amended herein to clarify that the purpose of the flow control element is to control the flow of a liquid (as opposed to a gas). Support for this amendment is found, for example, in paragraph 0046 of Applicants' specification.

As amended, Claims 1 and 10 are believed to be distinguished over Wu and Chomik et al in that each of these references teach vents/air valves for regulating air pressure (i.e., each passes air, a gas, as opposed to a liquid). Accordingly, it would not have been obvious to combine these references to produce the flow control elements of Claims 1 and 10.

Claims 2-7 and 11-15 are dependent from Claims 1 and 10, respectively, and are distinguished over the cited prior art for at least the reasons provided above with respect to Claims 1 and 10.

Rejection of Claims 8 and 16

Claims 8 and 16 are rejected under 35 U.S.C. 103 as being unpatentable over Wu in view of Chomik et al, and further in view

of Bouveau. As discussed above, Wu and Chomik are directed to vents/air valves for regulating air pressure. It would not have been obvious to combine the venting structure teachings of Wu and Chomik with the liquid flow control element of Bouveau because these structures perform two entirely different functions (i.e., controlling gas versus liquid flow).

Rejection of Claims 9 and 17

Claims 8 and 16 are rejected under 35 U.S.C. 103 as being unpatentable over Wu in view of Chomik et al, and further in view of Clark et al. As discussed above, Wu and Chomik are directed to vents/air valves for regulating air pressure. Clark is also directed to a venting structure intended to allow air to enter a spill-proof cup. Therefore it would not have been obvious to combine the venting structure teachings of Wu, Chomik and Clark to produce the liquid flow control element of Claims 9 and 17.

Rejection of Claims 18 and 19

Claims 18 and 19 are rejected under "obviousness-type double patenting" as being unpatentable over copending application 10/339,861 in view of Chomik.

Applicant strenuously objects to this apparently novel form of rejection as being an improper attempt to circumvent well-established rules regarding 35 USC 103. In particular, copending application 10/339,861 is not a proper reference under 35 USC 103, yet the Examiner is attempting to utilize this application as a 103 reference in combination with Chomik. Should the Examiner maintain this rejection, Applicant requests that the Examiner cite support for this type of reference either in the MPEP or in established case law. Applicant provisionally agrees to file a terminal disclaimer (a) should the Examiner show this form of rejection is proper, and (b) that the claims in copending application 10/339,861 be allowed.

For at least the above reasons, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 USC 103.

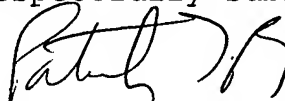
Claim is Allowable

Claim 20 is not subject to prior art reference, and is therefore amended to incorporate the limitations of independent Claim 18 (as amended in response to the rejections raised under 35 USC 112, discussed above). Accordingly, Claim 20 is now believed to be in condition for allowance.

CONCLUSION

Claims 1-20 are pending in the present Application. Reconsideration and allowance of these claims is respectfully requested. If there are any questions, please telephone the undersigned at (408) 451-5902 to expedite prosecution of this case.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service as FIRST CLASS MAIL in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on November 12, 2004.

11/12/2004
Date

Rebecca A. Baumann
Signature: Rebecca A. Baumann



Annotated Marked-Up Drawing

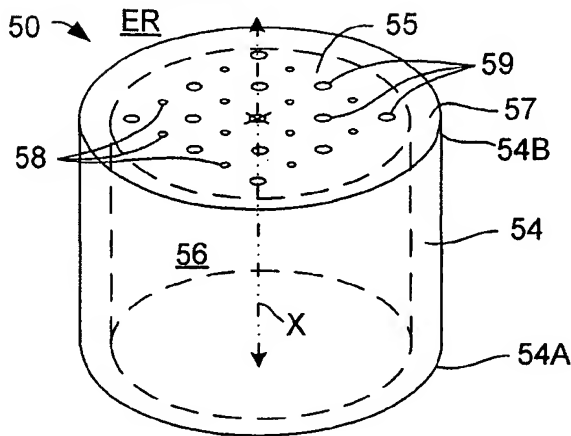


FIG. 1

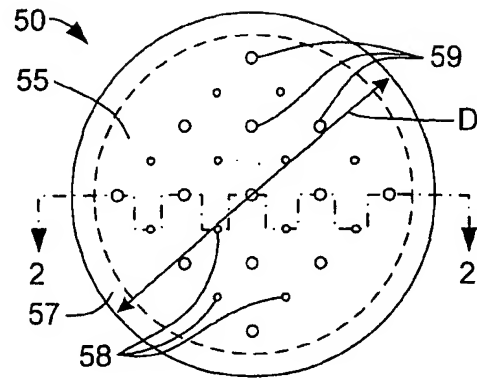


FIG. 2(A)

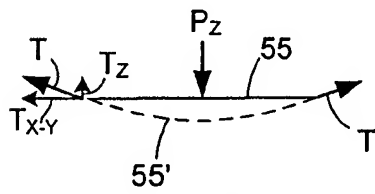


FIG. 3(A)

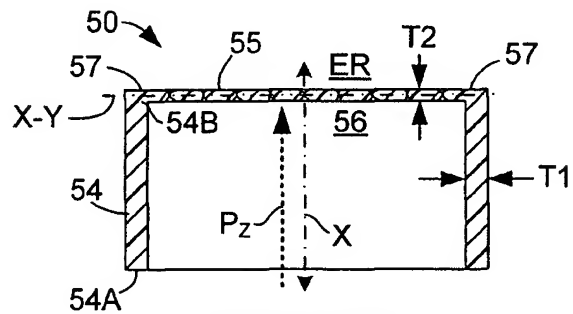


FIG. 2(B)

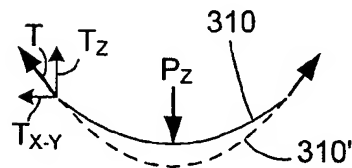


FIG. 3(B)

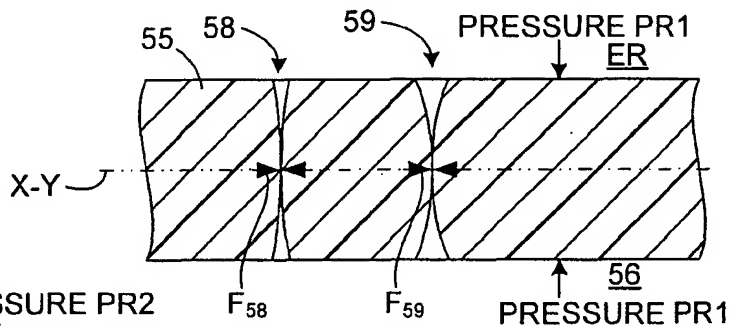


FIG. 4(A)

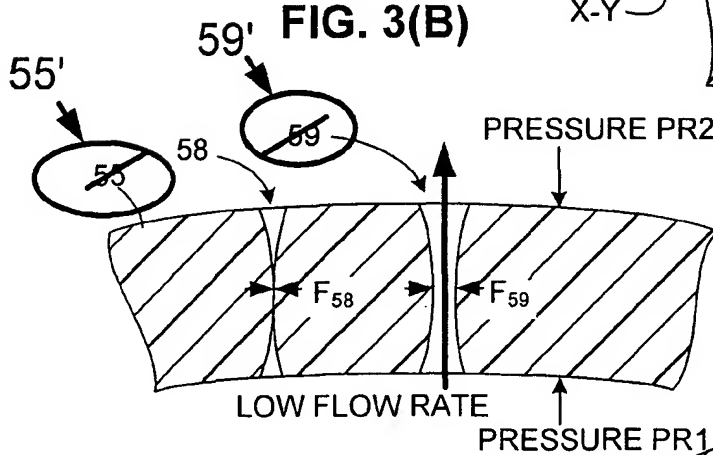


FIG. 4(B)

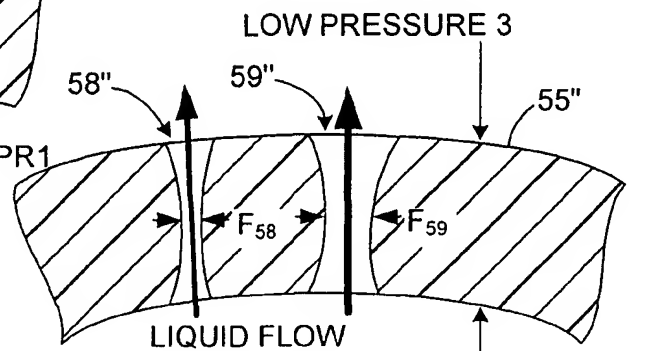


FIG. 4(C)

FIG. 6(C)

FIG. 11(B)

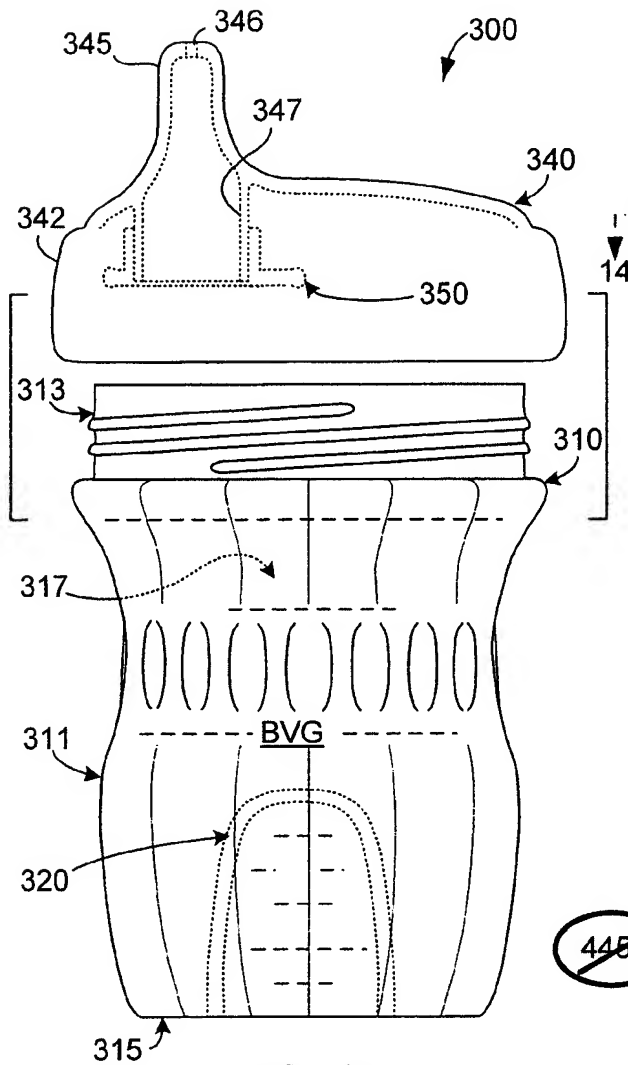


FIG. 12

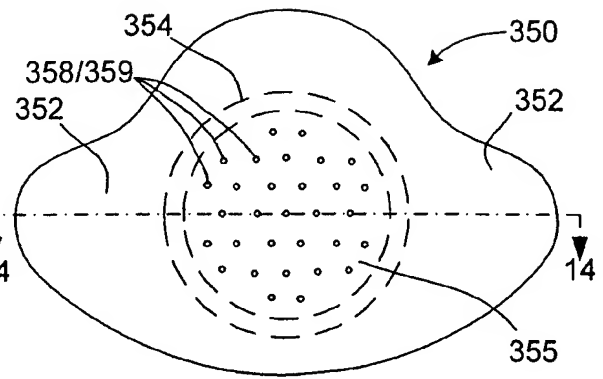


FIG. 13

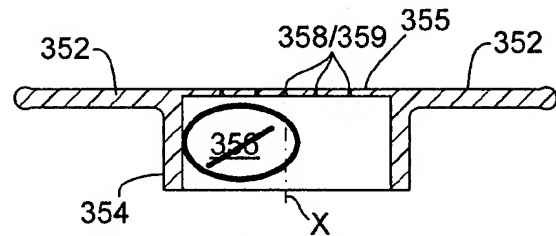


FIG. 14

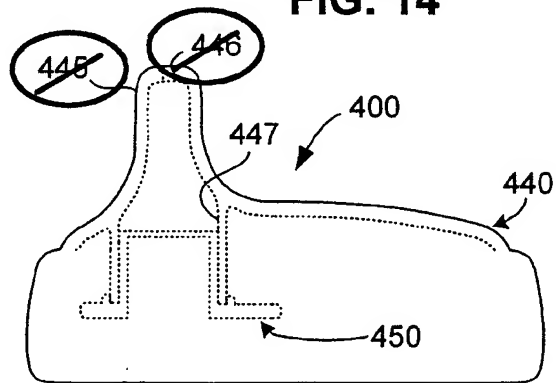


FIG. 15

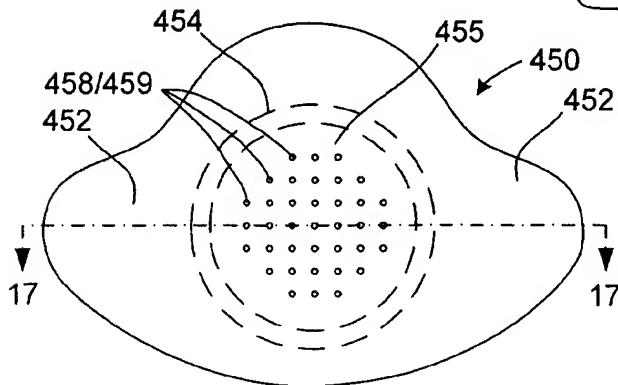


FIG. 16

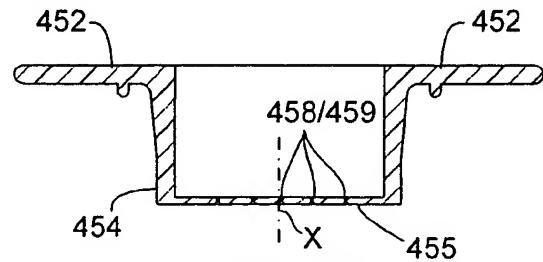


FIG. 17